EPA Review of the Response to EPA Comments dated July 31, 2017 on Sampling and Analysis Plan Radiological Data Evaluation and Confirmation Survey, Hunter's Point Naval Shipyard, San Francisco, California
September 22, 2017

Most of the responses addressed the comments; however, several require additional clarification. Additionally, a number of responses could not be verified because a revised Sampling and Analysis Plan (SAP) was not provided. This includes, but is not limited to, the responses to General Comments 1a, 1b, 1d, 1f, 3-4, 9, 11-14, 16-18, 20, and Specific Comments 1-11.

Evaluation of the Response to General Comment 1c: The response partially addresses the comment. Radium-226 (Ra-226) is not in secular equilibrium with parent radionuclides so any inferred gamma spec activity for Thorium-234 (Th-234) would be over-reported. Radium-228 (Ra-228)/Actinium-228 (Ac-228) activity should be in secular equilibrium with parent radionuclides; however, if Thorium analysis by alpha spec is performed then the decay chain equilibrium for both the thorium (Th-232) and the uranium (U-238) decay series can be evaluated. Please address the equilibrium issue in the Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) Radiological Data Evaluation and Confirmation Survey, Hunter's Point Naval Shipyard, San Francisco, California (the SAP).

Evaluation of the Response to GC 1e: The response partially addresses the comment. The response states that Americium-241 (Am-241), as well as plutonium, uranium, and thorium isotopes will be added to the SAP for the alpha spectrometry analysis; however, the response does not indicate that all samples will be analyzed by alpha spectrometry for these isotopes. Please include additional discussion to resolve the original comment.

Evaluation of the Response to GC2: The response partially addresses the comment. While a copy of the laboratory's gamma spectrometry library will be added to the SAP and footnotes in Worksheet #15 specify sample specific Minimum Detectable Concentrations (MCDs), please include laboratory-specific gamma spectrometry libraries and MDCs in each task specific plan (TSP).

Evaluation of the Response to GC 5: The response partially addresses the comment. While the response indicates that standard operating procedures (SOPs) will be obtained prior to commencement of field work, TSPs should include all SOPs for sample collection once the subcontractor has been identified for each project. Further, once these SOPs have been obtained, they should be submitted to the regulatory agencies for review and approval prior to commencement of the project. Please revise the SAP to include all SOPs upon identification of subcontractors and ensure that they are submitted to the regulatory agencies for review prior to starting sample collection.

Evaluation of the Response to GC6: The response partially addresses the comment. While 40 hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training is not considered specialized for soil samplers, the qualifications for supervising personnel and others qualified to handle radiological samples should be listed to ensure personnel equipped to handle radiologically contaminated material and associated situations (e.g., HAZWOPER Supervisor). Please revise the appropriate SAP Worksheet 7, Personnel Responsibilities, and Worksheet 8, Special Training Requirements and Special Certifications, to include qualification requirements

for field sampling personnel to be trained in radiological principles, and in sample collection, handling, and shipping of radiologically-impacted environmental media. Alternatively, please reference the relevant sections of the Radiological Work Plan that contains this information.

Evaluation of the Response to GC7: The response does not address the comment. The response should specify what properties qualify a sample as representative. Additionally, based on the number and types of allegations regarding sample collection fraud, re-analysis of archived samples may not be considered an acceptable method for generating data to support decision making at Hunter's Point Naval Shipyard (HPNS) site. For example, allegations available to the public include adding dirt "from anywhere" to make up missing sample volume and substituting soil from elsewhere for entire samples. Please revise the SAP to include qualifications for identifying an appropriately representative sample to ensure that archived samples used have not been subject to substitution or alteration. Additional samples should be taken at the archived sample location and analyzed.

Evaluation of the Response to GC8: The response addresses the comment. However, please ensure that alpha and/or beta scanning of the soil will also be performed to identify contamination remaining in the soil and ensure that this will be incorporated into the SAP.

Evaluation of the Responses to GC10 and GC19: The response partially addresses the comment. All programmatic requirements pertaining to the data collection, analysis, reporting, and assessment should be documented in a central programmatic document, i.e., the Quality Assurance Program Plan (QAPP), with details pertaining to each specific sampling plan documented in follow-on Task Specific Plans. While the Radiological Work Plan may be referenced in the QAPP and TSPs for instructions specific to the technical requirements of radiological data collection and radiation safety controls, details pertaining to data analysis and data quality assessment should be included directly in the QAPP and TSPs. Please revise the QAPP and/or forthcoming TSPs to include the requirements, goals, and calculations for statistical testing of the data. If it is anticipated that TSPs will necessitate that different statistical methods be used, then please ensure the QAPP states that the requirements of such data analysis techniques will be included in the TSPs. In addition, please ensure that the QAPP includes specifications that explains how the uncertainty associated with the radiological results will be reported and how the uncertainty will be handled in the statistical analyses.

Evaluation of the Response to GC15: The response does not address the comment. The information provided in Worksheets #14, and #34-46 does not appear to contain validation guidelines for radionuclides that should be included in the SAP. Also, Worksheet #14 states Under the Stage 2B data validation effort, the data values for primary and QC [quality control] samples are generally assumed to be correctly reported by the laboratory...If calculations for quantitation are verified, it is done on a limited basis and may require raw data in addition to the standard data forms normally present in a data package." All data package submittals should include the raw data such that the records associated with the generation of the data provide full documentary evidence of how the data was generated. In addition, the QAPP states that 20 percent (%) of the data will undergo full validation but it is unclear if this indicates 20% of the Sample Delivery Group (SDG)/data packages will be selected to undergo data validation or if 20% of the samples from each SDG will undergo validation. Further, given the circumstances of the extent of allegations of fraud, data quality issues adversely impacting the data results, and the general public and regulator concerns over the general lack of integrity of the information about

the characterization and cleanup at Hunters Point, it is recommended that all SDGs/data packages are required to have at least one sample validated. Please submit the validation procedures/guidelines for validating radionuclide data and ensure all data package submittals include the raw data, such that the records associated with the generation of the data provide full documentary evidence of how the data was generated. Inclusion of the raw data as generated from laboratory instrumentation should be included in the QAPP, SAP, and TSPs. Review of the raw data will help to determine if unidentified peaks found in the gamma spectrum were missed or resulted in under reporting activity concentrations. Additionally, please revise the SAP to clarify the type of data that will undergo validation and ensure that at least one sample is validated from each SDG/data package to verify the integrity of the data. Please ensure the SAP includes all this information.

Evaluation of the Response to SC12: The response partially addresses the comment. It is unclear if there will be a separate Data Quality Assurance (DQA) report for each parcel. A separate DQA report for each parcel is necessary to facilitate transfer of separate parcels. Please revise the SAP to clarify that a DQA report will be provided per parcel.